

## AMENDMENTS

### *In the Claims*

The following is a marked-up version of the claims with the language that is underlined (“    ”) being added and the language that contains strikethrough (“~~—~~”) being deleted:

1. (Previously Presented) A transceiver, comprising:  
  
    means for receiving a locally generated transmit signal;  
  
    means for coupling the locally generated transmit signal to a communication medium,  
  
the means for coupling further coupled to a remotely generated receive signal; and  
  
    a multi-stage digital filter comprising a dual-stage finite impulse response (FIR) filter, the  
multi-stage digital filter configured to reduce both short-term echo components and long-tail  
echo components of the locally generated transmit signal, one stage of the dual-stage FIR filter  
separately processing the short-term echo components and another stage of the dual stage FIR  
filter separately processing the long-tail components, wherein the reduction of transmit signal  
echo is realized in a hybrid echo canceller.
2. (Canceled)
3. (Previously Presented) The transceiver of claim 1, further comprising:  
  
    means for determining the length in taps of the digital filter required to reduce the short-  
term echo components; and  
  
    means for bifurcating the multi-stage digital filter responsive to the determination means.

4. (Canceled)

5. (Previously Presented) The transceiver of claim 1, wherein the multi-stage digital filter comprises a first stage that applies coefficients derived for each tap of the first stage and a second stage that derives coefficient values for a subset of the taps of the second stage.

6. (Original) The transceiver of claim 5, wherein the second stage applies a coefficient value to each tap.

7. (Original) The transceiver of claim 5, wherein the second stage derives coefficient values for each  $K^{\text{th}}$  tap.

8. (Original) The transceiver of claim 7, wherein the second stage uses an interpolation scheme to determine coefficients to apply at each of the taps disposed between taps associated with a derived coefficient.

9. (Original) The transceiver of claim 8, wherein the second stage applies a coefficient value at taps disposed between derived coefficients as a function of a coefficient value for the last derived coefficient.

10. (Original) The transceiver of claim 9, wherein the second stage applies the same coefficient value at taps disposed between derived coefficients as the coefficient value for the last derived coefficient.

11-16. (Canceled)

17. (Original) A digital signal transceiver, comprising:
- a transmitter configured to receive a locally generated transmit signal;
  - a hybrid electrically coupled to the transmitter configured to receive and inductively couple the transmit signal to a two-wire transmission line, the hybrid further configured to receive a remotely generated receive signal along the two-wire transmission line;
  - a receiver configured to process the remotely generated receive signal; and
  - an echo canceller disposed in parallel between the transmitter and the receiver configured to reduce both short-term echo components and long-tail echo components of the locally generated transmit signal wherein the echo canceller calculates coefficient values for less than N taps while emulating a N tap digital filter.
18. (Original) The transceiver of claim 17, wherein the echo canceller comprises a bifurcated digital filter that adaptively calculates and applies tap coefficients to each of a plurality of filter taps in a first stage and adaptively calculates and applies a subset of tap coefficient values to a plurality of filter taps in a second stage.
19. (Original) The transceiver of claim 18, wherein the digital filter adaptively calculates a tap coefficient value for a first tap of the second stage and every  $K^{\text{th}}$  tap thereafter.

20. (Original) The transceiver of claim 19, wherein the digital filter interpolates the calculated tap coefficient values for the second stage to identify coefficient values to apply at taps disposed between taps associated with a calculated tap coefficient.

21-26. (Canceled)